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I   OBJECTIVE

This class is conducted to give branch and division personnel a better under-
standing of the requirements for obtaining printing or reproduction of forms
and form letters. It is not the intention of this course to make an expert
forms designer or technical printer out of anyone. Some of the major points
are discussed in this class in order to give an over-all picture of the
various processes involved when a form is developed. (Exhibit A of OMS Manual
Instruction 103.3 is distributed to the class at this time.)

II   SERVICES AVAILABLE

There are two types of service available to us:

    1   GOVERNMENT PRINTING OFFICE SERVICE

        (a)   Offset - Multilith duplicating (Multilith is merely one trade
name for an offset machine. Other trade names are "Webbendorfer" and
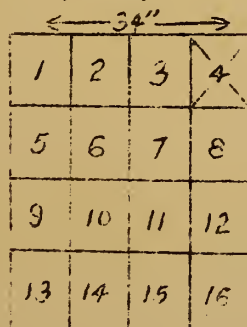"Harris".)

        (b)   Printing - Referred to oftentimes as "moveable type composi-
tion." This is actual printing where the type face comes in direct con-
tact with each sheet of paper.

    2   PHOTOGRAPHING & DUPLICATING (Local Shop) Office of Plant & Operations
        of the Department.

        (a)   Offset - Multilith duplicating and mimeographing reproduction
by offset process is cheaper up to a reasonable quantity.

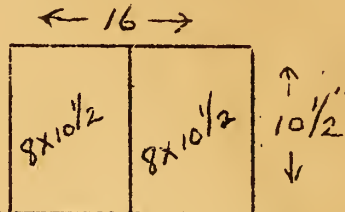## III   STANDARD PAPER SIZES FOR OFFSET PRINTING

Paper stocks are in standard sizes: 8" x 10½", 8½" x 11", and multiples there-
of. The Government Printing Office carries the standard stock size of 34" x
44", and 68" x 88" (or a multiple of 8½" x 11"). The "Gang" method of
printing is used at GPO: thus 16 different forms may be set-up on a layout for
off-set printing on a 34" x 44" sheet. The value of "Gang" method printing
can readily be realized: Each time the machine makes one revolution, 16 copies
of one form or one copy of 16 different forms are printed. At this rate it
would not take long to print many--say 200,000--copies size 8½" x 11".

EACH SHEET TRIMMED TO 8½" X 11"

IV OVER-NIGHT OFFSET PRINTING SERVICE AVAILABLE

We can also obtain an over-night printing service (on the offset) at the GPO, but at present this service is limited to war food order forms only. Quantity is not a major problem in the printing of forms by the GPO, because commercial concerns contract work from them from time to time, as GPO work load may require. The "Gang" method mentioned previously can also be done by the Office of Plant and Operations of the Department except on a much smaller scale thus:

As stated in Exhibit "A" the first three steps are to be considered before actual design or layout of the form. In designing a form to the modern box principle, the basic principle is to allot only the maximum space required to answer the question or item involved. Exhibit "1" under Exhibit "A" shows the layout of an average "line form". Exhibit "2" shows the same form placed into box principle design using Form OD-2 "Forms Design Guide Sheet". Exhibit "3" shows the same form after it has been typed on a standard typewriter from Exhibit "2". Exhibit "4" is the same form after it has been composed on the varityper composing machine. Considerable space is saved in exhibits 2,3, and 4 compared to Exhibit "1". Exhibit "1" was on paper size 8" x 12½"; Exhibits 2, 3, and 4, size 8" x 10½".

V THE CAPACITIES OF THE VARITYPER COMPOSING MACHINE IN CONNECTION WITH FORMS DESIGNING

The Varityper is a composing machine which is used to prepare "master copy" material for photographic offset reproduction. The machine has a type size range from 6 pts. thru 10 pts. Type points are based on a standard scale of 72 points to 1" in body size, and 3/4" in actual type height. On this basis a 36 point type measures 3/8" in height and sets on a ½" body.

The varityper, compared to the standard typewriter, writes in 1 inch:

VARITYPER		STANDARD TYPEWRITER	
HORIZONTALLY	VERTICALLY	HORIZONTALLY	VERTICALLY
16 characters	9 lines	12 characters	6 lines
14 "		10 "	
12 "			
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Bear in mind that the above spacing of 16 characters to 1 inch horizontally does not mean that 16 characters would fit into a 1" column; that

a space should be allowed on each side of the column heading. When calculating for a 2" column merely multiply 16 characters times 2, minus 2 allowing 30 characters to be set in the column. This calculation is necessary on any size column or space. Calculation for line spacing vertically is identical; thus a vertical space of 5 inches would be 5 times 9, minus 2 equalling 43 lines maximum.

VI STANDARD TYPEWRITERS

The Department of Agriculture has three typewriters that write horizontally: (1) Pica type – 10 spaces to the inch; (2) Elite type (this is the general standard typewriter in use) 12 spaces to the inch; (3) Micro-elite, 16 spaces to the inch. The Micro-elite however is scarce throughout the Department. Pica and elite typewriters write 6 lines to the inch vertically and Micro-elite writer 9 lines to the inch.

VII TYPES OF FORMS IN USE

Internal – Forms that are used to carry out a function or operation within the bureau or Department.

External – Forms that are needed by the Department to obtain information from the general public. (Defined in Regulation "A" "Federal Reports Act" dated Feb. 13, 1942. The general requirements cited under the Regula.- tion "A" of the Federal Reports Act are explained.)

VIII OUTLINE OF TECHNICAL OPERATIONS INVOLVED WHEN A FORM IS REQUESTED

It is not commonly known to the layman just what the various technical phases that a form must go through from the time of the "birth" of the form until it has been printed or reproduced. The following outline (presented on the blackboard) will give you a fairly good idea:

A   Originating office creates a form.
B   COMPOSITION
          Composition of "master reproduction copy"
               1.   Varityping
               2.   Drafting
               3.   Proof reading
               4.   Corrections
C   PHOTOGRAPHER
          Photographic Laboratory
               1.   Photograph "master reproduction copy"
               2.   Develop negative
               3.   Opaque or "spot" negative. (Mask or strip when necessary)

4. Prepare "multilith" plate
   a. Acid washing
   b. Sensitize
   c. "Burn" image on plate from negative
   d. Ink Plate
   e. Rewash & dry
   f. Gum plate (preserve for later use)

D PRESSMAN (multilith operator)
   1. Attaches plate to machine
   2. Lines up job
   3. Final check
   4. Runs copies

IX TECHNICAL "TERMS" OF PRINTING AND REPRODUCTION

"Gutter" or "binding margin" is space to remain for punching, stapling or binding a number of pages together.

"Gripper space" is space required by pressman on offset machines for "Fingers" to pull paper stock from rubber blanket.

"Negative cutting" is negative stripping performed in photographic laboratory when stripping more than one negative together for plate making.

"Spotting" or "Opaquing" means eliminating the imperfections from a negative after it has been developed and dried. This operation is necessary because of the super-sensitiveness of the lenses on the camera. The "spotting" process is similar to "touch-up" of portrait photography. Without this important operation all imperfections would be reproduced on final run copies.

"Bleed jobs" means forms that have the lines running off the edge of the paper or card stock. "Bleed jobs" usually are requested on visible card stock.jobs in order to utilize the entire card.

"Head to Head" printing is the method of printing requested as "leaflet book style".

"Head to Foot" or "Tumble style" printing is the method of printing requested where the head of the first page is printed toward the foot of the reverse side of the form.

"Back-up" in reproduction or printing means printing on the front and back of one sheet of paper.

"A bromide" is an enlargement of material. Enlargement can be made to practically any size. See Requisition Form AD-271.

"Contact print" is a print made on sensitized paper (glossy, or dull). This operation may be compared to commercial "snap-shots".

X   DESIGN GUIDE SHEETS OR "WORKING TOOL FOR BETTER FORMS"

In order to assist branches and divisions in the preparation of forms
for printing and reproduction and eliminate "bottle-necks" in obtaining ser-
vice on forms and form letters, several "Design Guide Sheets" have been
printed for designing, planning, and improving presentation. In view of the
statements in paragraph VI, "Design Guide Sheets" have been planned to accom-
odate the several spacings of typewriters, both horizontal and vertical. The
Office of Marketing Services has available to branches and divisions the
following design guide sheets:

Form OD-2 "Design Guide Sheet" 8" x 10½" (Actual size, no reduction)
Form OD-3 "Design Guide Sheet" 10½" x 16" (Actual size, no reduction)
Form AD-505 "Design Guide Sheet for 10% Reduction" (This guide sheet
        requires a 10% photographic reduction to bring finished
        size down to a standard 8" x 10½" paper size.)
Form AD-503 "Design Guide Sheet for 25% Reduction" (This guide sheet
        requires a 25% photographic reduction to bring finished
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(A typical example, "Form OMS-31 Ginning Costs", is used in the class and the
students design the form along with design on the blackboard. This is done
to instruct students in proper planning, consolidation, elimination, and
format to be used in designing.)

XI   BLANK LEDGER FORMS

In view of the numerous requests of "small quantity" runs of miscellan-
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The blank ledger forms are ideal for worksheets, grids, charts, diagrams,
block number sheets, statistical data, and so forth. In addition to their
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design".

XII   <u>VISIT TO REPRODUCTION AND DUPLICATING SECTION OF PLANT & OPERATIONS</u>

The class visits the Reproduction and Duplicating Section, Office of
Plant and Operations. The visit is made to enable the students to get a
clearer picture of the actual mechanics involved in obtaining such service.
The visit includes operations in Section VIII of this circular and intricate
operation of the collating or assembling machinery, stapler, paper cutter,
addressograph, package wrapper, cancellation and sealing machine, paper
folding machinery, punching machinery, mimeographing machinery, and the
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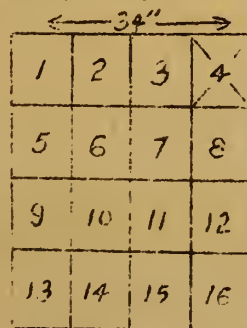
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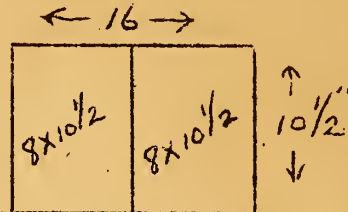## III STANDARD PAPER SIZES FOR OFFSET PRINTING

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